Bean Tunnel

Ecological Method Statement for Vegetation Clearance

Document Ref: 10044832-ARC-00-ZZ-RP-EC-0010-01-MS

Revision: 01

JULY 2024

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Document Ref.	10044832-ARC-00-ZZ-RP-EC-0010-01-MS
Date	JULY 2024

Version Control

Version	Date	Author	Checker	Reviewer	Approver	Changes
01	20/06/2024	JW	GS	SW	SW	First Issue

This report dated 09 July 2024 has been prepared for Kent County Council (the "Client") in accordance with the terms and conditions of appointment dated 05 October 2023(the "Appointment") between the Client and **Arcadis Consulting (UK) Limited** ("Arcadis") for the purposes specified in the Appointment. For avoidance of doubt, no other person(s) may use or rely upon this report or its contents, and Arcadis accepts no responsibility for any such use or reliance thereon by any other third party.

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EXECUTIVE SUMMARY

Arcadis Consulting (UK) Limited was commissioned by Kent County Council to produce an ecological Method Statement to minimise ecological impacts from vegetation clearance associated with the development proposal at Bluewater, Kent, and the adjacent Eastern Quarry site. The development proposal includes the construction of a new tunnel through the chalk spine under the B255 Bean Road between Bluewater Shopping Centre and the Eastern Quarry site, serving to directly connect the shopping centre to the new Eastern Quarry development and Ebbsfleet International Railway Station.

The objectives of the Method Statement are to ensure that the working techniques undertaken as part of the proposed vegetation clearance works avoid harm or disturbance to protected species, and habitats (key ecological features) that are known or have the potential to be present within the proposed development site, in accordance with relevant legislation and policy; and to ensure that no offences are committed.

Small-leaved Cotoneaster, an invasive non-native plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) is present within the works area. It is an offence to allow this plant to grow in the wild and as such measures must be taken to avoid its spread.

The site is used by amphibians including common frog, common toad and smooth newt. Common toad is listed on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Impacts from habitat clearance are anticipated to negatively impact this species group. There is a risk that without appropriate considerations, vegetation clearance could negatively impact these species.

Slow worm, grass snake and common lizard have been recorded either on site or in nearby connected habitat. These reptiles are protected against killing or injury under the Wildlife and Countryside Act 1981 (as amended).

The scrub, woodland and reedbeds on site were considered likely to support nesting bird species during the breeding season. All birds, their nests and their eggs are protected from being killed or taken under the Wildlife and Countryside Act 1981 (as amended).

It is unlikely that hazel dormouse will be found on site due to the limited connectivity between previous dormouse records 400 m to the south and the habitats within site. Nonetheless, as a precautionary measure a Method Statement for vegetation clearance with consideration of hazel dormouse has been provided to remove all risks of negatively impacting to this species.

The document outlines several mitigation requirements including works overseen by a suitability qualified ecologist, timing of works to avoid the sensitive periods for species, phased vegetation clearance, and a destructive search. By following requirements set out in this document, impacts should be avoided to these species, therefore negating the need for further surveys or an exclusion and translocation of work areas. A separate method statement will be produced for bats as part of a licence application.

1 INTRODUCTION

1.1 Scope

Arcadis Consulting (UK) Limited ('Arcadis') was commissioned by Kent County Council to produce an ecological Method Statement (hereafter referred to as the Method Statement) to minimise ecological impacts from vegetation clearance associated with proposed development at Bluewater, Kent and the adjacent eastern quarry site, hereafter referred to as the 'site'.

The following features were identified as being potentially impacted from vegetation clearance in the absence of a method statement: invasive non-native plant species, other amphibians (common toad (*Bufo bufo)*, common frog (*Rana temporaria)* and smooth newt (*Lissotriton vulgaris*), reptiles, birds, and hazel dormouse (*Muscardinus avellanarius)*.

Small-leaved Cotoneaster (*Cotoneaster microphyllus*), an invasive plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) (HMG, 1981) is also present within the works area. It is an offence to allow this plant to grow in the wild and as such measures must be taken to avoid its spread.

The site is used by other amphibians including common frog, common toad and smooth newt. Common toad is listed on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 (HMG, 2006). Impacts from habitat clearance are anticipated to negatively impact this species group. There is a risk that without appropriate vegetation considerations, works could negatively impact these species.

Slow worm, grass snake and common lizard have been recorded either on site or in nearby connected habitat. These reptiles are protected against killing or injury under the Wildlife and Countryside Act 1981 (as amended) (HMG, 1981).

The scrub, woodland and reedbeds on site were considered likely to support nesting bird species during the breeding season. All birds, their nests and their eggs are protected from being killed or taken under the Wildlife and Countryside Act 1981 (as amended) (HMG, 1981).

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The document outlines several mitigation requirements including works overseen by a suitability qualified ecologist, timing of works to avoid the sensitive periods for species, phased vegetation clearance, and a destructive search. By following requirements set out in the Method Statement, impacts to species should be avoided, therefore negating the need for further surveys or a translocation and exclusion of work areas.

This Method Statement is intended to ensure that the pre-construction vegetation clearance minimises harm or disturbance to protected species, and habitats (key ecological features) that are known or may be present within the proposed development site, in accordance with relevant legislation and policy.

The current Method Statement covers the listed elements of work associated with the proposed vegetation clearance activities. It may be updated at a later date to detail construction timings and any mitigation measures required for the main construction works.

A separate method statement will be produced for bats as part of a licence application.

1.2 Site Location and Setting

The site is located in Dartford, Kent, Ordnance Survey (OS) Grid Reference TQ 58470 73348. The site boundary is shown in **Error! Reference source not found.** Appendix A. The site is split between the western and eastern side of the B255 Bean Road.

The western extent of the site is located west of the B255 Bean Road and supports woodland, scrub and reedbed. The reedbed formed part of the original development in 1996-1998 to provide final treatment for surface water from paved areas. The western extent also includes highway, paving and a single building which was a Thames Water building and facilitated part of the water treatment process on site. A grassed area outside the planning boundary to the north of the Thames Water building will be used as an area to contain a temporary compound during construction.

The eastern side of the B255 Bean Road is within Eastern Quarry, it comprises bare ground that will be utilised by Whitecliffe development for residential dwellings. During construction for the Bluewater proposals, this area, which is outside the planning boundary, will contain a temporary site compound.

There are two tunnels within the chalk spine on site originally constructed to facilitate a connection between Western and Eastern Quarry, also serving as conduits for material transport between the quarries when Bluewater Shopping Centre was under construction. These are referred to as the northern (Tunnel 2) and southern (Tunnel 1) haulage tunnels. There also exists the former conveyor tunnel (Tunnel 3) which sits outside the site boundary.

1.3 Previous Surveys, Reports, and Undertakings

The site was granted planning permission in June 2020 (application reference number: DA/19/1549 (KCC/DA/0232/2019), this permission has now expired. A suite of ecological surveys and associated reports were produced by Arup in 2019 (Arup, 2019a), (Arup, 2019b), and (Arup, 2019c) which were included within the original planning application. The approved application included the provision of compensation due to the impact from the works in the form of reedbed creation, bat mitigation, and planting of 30 trees. Although the development itself did not go ahead, all mitigation except reedbed creation has been carried out. The bat compensation consisted of the installation of bat boxes within all tunnels, and boarded cladding within Tunnel 1. A total of 30 trees were planted along the east side of Lake 5, to the west of the Bluewater site.

Middlemarch carried out several monitoring surveys within the site and Bluewater site in 2022/2023 (Middlemarch, 2022), (Middlemarch, 2023a), (Middlemarch, 2023b), (Middlemarch, 2023c), and (Middlemarch, 2023d).

In 2023, an extended UKHab survey was undertaken by Arcadis and included the habitats within the red line boundary. The survey also identified vegetation due for clearance that had the potential to support non-native invasive and/or protected/notable species.

The ecological surveys to date have identified the following confirmed ecological features on site within areas due for vegetation clearance:

- Invasive species: Small-leaved Cotoneaster

In addition, the site has the potential to support the following potential ecological features within areas due for vegetation clearance:

- Protected species: reptiles, other amphibians, nesting birds, hazel dormouse

It was considered unlikely that great crested newt would be present on site.

2 Proposed Works

2.1 Development Proposal

The proposed development comprises the construction of a new tunnel and relevant road infrastructure to provide bus, cycling, and pedestrian accessibility on the eastern side of Bluewater. This initiative aims to establish a connection between residential development within the former Eastern Quarry, known as the Whitecliff development, which is under construction. The proposed new tunnel is planned to be situated north of the two existing haulage tunnels, and the conveyancing tunnel outside of the application area.

The development of Bean Tunnel and associated infrastructure is anticipated to take a maximum of 15 months to complete, with a commencement date of March 2025.

2.2 Vegetation Clearance

The areas to be cleared consist mostly of modified grassland, reedbed, mixed scrub, broadleaved woodland, ruderal land and urban trees see Habitat Baseline Appendix A.

This Method Statement details the methods for vegetation clearance and other related activities and is designed to protect the important ecological features on site.

3 Method of Works

The appointed contractor(s) is/are responsible for implementing the measures below.

3.1 Toolbox Talks

All contractors should be provided with a toolbox talk prior to works commencing on the proposed development site. The toolbox talk should cover the ecological constraints on site (i.e. presence of protected/invasive species), method of works (this document), mitigation (including areas to be avoided/undisturbed) and action to be taken in the event of discovering a protected/invasive species.

Toolbox talks should be arranged prior to activities on site that require the presence of an ecologist.

3.2 Environmental Clerk of Works

An environmental clerk of works (ECoW) will be provided by the appointed contractor and is required for the following activities at the following stages of works (further details in sections 3.4, 3.5 & 3.6 below):

Prior to vegetation clearance

- Inspection and dismantling of log piles within clearance footprint

Within 48 hours prior to vegetation clearance beginning on site

- Nesting bird check

Immediately prior to stage 1 of vegetation clearance

- Nesting hazel dormouse check
- Destructive search of existing reptile/amphibian refugia/hibernacula
- Hand search of suitable reptile/amphibian habitats to be cleared

Immediately prior to stage 2 of vegetation clearance

- Hand search of areas cleared during stage 1

Following vegetation clearance

- Destructive search of areas cleared during stage 2

In addition, should the following unexpected circumstances occur when the ECoW is not present, works should be stopped and the ECoW should be contacted for advice:

- Discovery of any other protected species: in this event work should be immediately stopped and the ECoW will advise further actions
- Accidental creation of suitable reptile/amphibian habitat/refugia within works footprint during works (e.g. improperly stored cut vegetation or soil)
- Accidental spread of invasive species
- Requirement to carry out activities not covered by the Method Statement, or in areas different to those shown in Appendix A, or in a manner different to that described in this document.

3.3 Access and Storage of Materials and Waste

The appointed contractor(s) is/are responsible for implementing the measures below and they will not be overseen by the ECoW.

Prior to completion of vegetation clearance, vehicular access to the site should be restricted to the existing areas of hardstanding, and temporary compound areas. These areas should also be used for material and equipment storage and the siting of a skip for waste. It is not anticipated that tree removal will be required within the temporary compound to the east and north of the site. However, if tree removal is required then they must be confirmed clear of protected species by an ECoW.

Care should be taken not to drive over, or store soil or cleared vegetation on areas which have not yet been cleared of vegetation and confirmed clear of protected species by the ECoW. Cut/cleared vegetation should be raked up or collected and stored in a skip and disposed of off-site to avoid creating suitable reptile habitat and thus an ecological constraint within the works area.

3.4 Small-leaved Cotoneaster Clearance

A suitably experienced specialist contractor must be employed to carry out the control and removal of invasive species. The precise location of this species was recorded at TQ5846073536.

Small-leaved Cotoneaster affected by the vegetation clearance must be controlled using manual cutting, stem treatment, and/or herbicide spraying (Plantlife, 2024). The process for killing and removing small-leaved cotoneaster is to be followed:

Prepare for Treatment:

- Perform cutting and stump treating during the growing season, from mid-March to the end of October, for the best results.
- Begin the process by cutting the cotoneaster down to its stump.

Apply Herbicide:

- Immediately after cutting, apply herbicide to the small surface area of the exposed stump. This is crucial for the treatment to be effective.

Removal of vegetation:

- The resulting cut woody material must be disposed of with care, either chipped and left on site, or bagged and disposed by a licenced waste broker.
- Soil which may contain Small-leaved Cotoneaster seeds must be appropriately labelled and not be taken off site unless it is removed by a licenced waste broker. It must not be mixed with other waste vegetation that is not considered contaminated.

3.4.1 Biosecurity

Vehicles must not track on soil within 7 m of living Small-leaved Cotoneaster (unless the wheels/treads/tracks are thoroughly cleaned of soil in a suitable washdown area before leaving site). Site operatives' boots and any other clothing that may come into contact with soil must also be washed down before leaving site.

3.5 Amphibians and Reptiles

3.5.1 Phased Vegetation Clearance

Given the low numbers of reptiles and amphibians recorded from the desk study and previous surveys, a monitored, three-stage approach to vegetation removal is recommended when reptiles and amphibians are active to avoid disturbing hibernating animals (Edgar, 2010). This approach should take place between April to September, but ideally September to avoid effects on nesting birds and other species on site. The approach diminishes the suitability of the works area to support amphibians and reptiles and encourage their movement to other nearby suitable habitats. This approach will be used for woodland, scrub, and reedbed habitats, and in a direction shown in Appendix A. The technique is as follows:

Table 1: Vegetation removal technique

Stage	Timing*	Activity	To be completed by
1	Stage 1	Removal of refuges (such as brash, log piles, litter and construction waste), hand search of suitable habitats to be cleared.	ECoW
		Strim vegetation down to 150 mm (using brush-cutter or strimmer). Direction of cut to be from centre of works area outwards (as shown in Appendix A). Rake off the arisings and remove from works footprint. Leave cleared area undisturbed for at least 24 hours of dry weather.	Vegetation clearance contractor, overseen by ECoW
2	Stage 2 (At least 48 hours after first cut)	Hand search of areas cleared during stage 1.	ECoW
		Strim vegetation to ground level. Rake off the arisings (including removal of the dead reed) and remove from works footprint. Leave undisturbed for at least 24 hours of dry weather.	Vegetation clearance contractor, overseen by ECoW
3	Stage 3	Hand search of areas cleared during stage 2.	ECoW

**Dependent on weather conditions, numbers of reptiles found, and speed of works*

The ECoW shall oversee each stage of these works to move any reptiles or amphibians that are discovered to a place of safety; allowing them to disperse into adjacent habitats and where necessary, using gloved hands to relocate them into adjacent habitats.

All vegetation clearance to be undertaken by hand, for example using a brush cutter or strimmer. This is to take place when reptiles are active to avoid disturbing hibernating animals, i.e., works to take place in the period April to September.

Ideally, vegetation to be cleared in September; to avoid the hibernation period and coincide with the end of the bird breeding season. Works to take place during daylight hours only. Any extensions of works beyond the end of September are weather dependent and must be agreed by the ECoW. Vegetation clearance may be undertaken during October until overnight frosts occur, when reptiles start to go into hibernation.

The vegetation clearance works to take place systematically across the site to enable reptiles and amphibians to move of their own accord into safe areas (as shown in Appendix A). Beginning within the northern area of scrub, clear scrub towards the south then work east to the northern area of reedbed and east towards woodland adjacent to Tunnel 2 then south towards Tunnel 1 to areas of retained woodland and scrub (suitable reptile habitat).

Table 2: Destructive Search Process Post Planning Approval

Stage	Timing*	Activity	To be completed by
Post-Planning Approval	By the end of September / beginning of October	Undertake a destructive search of the areas cleared scraping the surface 250 mm of topsoil from the footprint of the works, by hand or using a small excavator with a toothed bucket. This must only be undertaken between March and September (the period when reptiles are active).	ECoW with vegetation clearance contractor

**Dependent on weather conditions, numbers of reptiles found, and speed of works*

The topsoil must be removed using a small excavator with a toothed bucket, tracking over areas that have already been destructively searched. Amphibians and reptiles burrow into the topsoil; therefore, the destructive search must be completed under the supervision of an ECoW.

3.5.2 Clearance of potential refugia

If the site clearance works require the removal of potential refuge sites for amphibians and reptiles (e.g. tree roots/stumps, fallen trees, log/brash piles, piles of cut vegetation, compost heaps, litter/debris piles, and discarded materials such as metal sheets and wood), a destructive search for amphibians and reptiles must be overseen by an ECoW. This must be undertaken by the end of September before the hibernation period. It may be possible to continue these works into October dependant on weather and as agreed by the ECoW.

Onn completion of the destructive search and removal of any refuges the works area will be considered free of amphibians and reptiles and construction works may proceed. The areas must be maintained in this condition to ensure they remain unsuitable for use by amphibians and reptiles, throughout the construction period.

3.6 Birds

3.6.1 Nesting bird checks

The main breeding season for most UK species runs from March to August (inclusive) therefore it is recommended that all vegetation clearance works be undertaken outside of this time period. If vegetation clearance takes place during the nesting bird season, prior to commencement of that vegetation clearance, the ECoW must search the area to ensure that it is free from nesting birds. If a nesting bird is discovered, the nest must remain in-situ, undisturbed, with a species-specific buffer of vegetation (to be advised by the ECoW), until the chicks have fledged. This may cause in the clearance programme.

3.7 Hazel Dormouse

3.7.1 Vegetation clearance for Hazel Dormouse

All tree, shrub and scrub clearance to be overseen by an ECoW and carried out using hand tools only.

Pre-clearance checks

- All vegetation to be searched to ensure that there are no dormice or dormouse nests in advance of clearance. Works would need to cease if a nest or dormouse is found, the works would then only continue under licence.

Timing

- Vegetation clearance to take place when dormouse is active in the period April to September, potentially extending into October and winter with advice from the ECoW.

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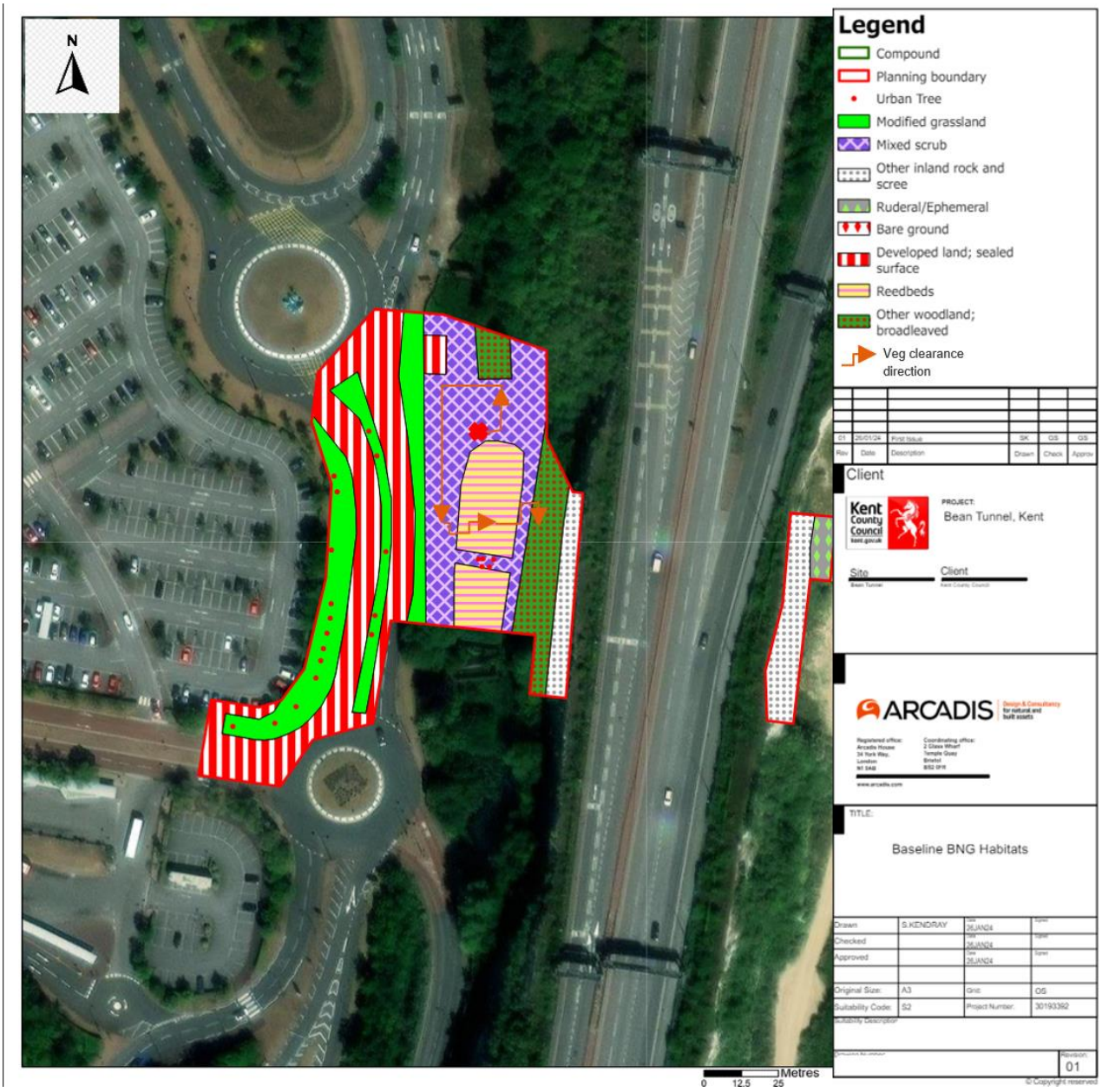
Appendix A

Drawing 1: UKHab Survey with vegetation clearance pathway



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